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SCREENING SITE INSPECTION REPORT
FOR
LAKE-ABRAMS HOLDING PONDS
MIDDLEBURG HEIGHTS, OHIO
U.S. EPA ID: OHD980510218
SS ID: NONE
TDD: F05-8912-013
PAN: F0H0138SB

JUNE 26, 1991

ecology and environment, inc.

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International Specialists in the Environment

SIGNATURE PAGE
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1. INTRODUCTION

Ecology and Environment, Inc., Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Lake Abrams Holding Ponds (Abrams) site under contract number 68-01-7347. This site is referred to as Lake Engle by area residents.

The site was initially discovered as a result of complaints submitted by local residents to the Cuyahoga County Board of Health (CCBH) alleging that an oil-like substance had been spilled into the pond. The date of discovery was prior to 1980; however, the exact date is not known.

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Dan Markowitz of the Ohio Environmental Protection Agency (OEPA) and is dated September 24, 1987 (U.S. EPA 1987).

FIT prepared an SSI work plan for the Abrams site under technical directive document (TDD) F05-8912-013, issued on November 30, 1989. The SSI work plan was approved by U.S. EPA on August 21, 1990. The SSI of the Abrams site was conducted on October 17 and 18, 1990, under amended TDD F05-8912-013, issued on August 21, 1990.

The FIT SSI included two separate interviews with site representatives, a reconnaissance inspection of the site, and the collection of nine soil samples.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

U.S. EPA Region V has also instructed FIT to identify sites during the SSI that may require removal action to remediate an immediate human health or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

This section presents information obtained from SSI work plan preparation, the site representative interviews, and the reconnaissance inspection of the site.

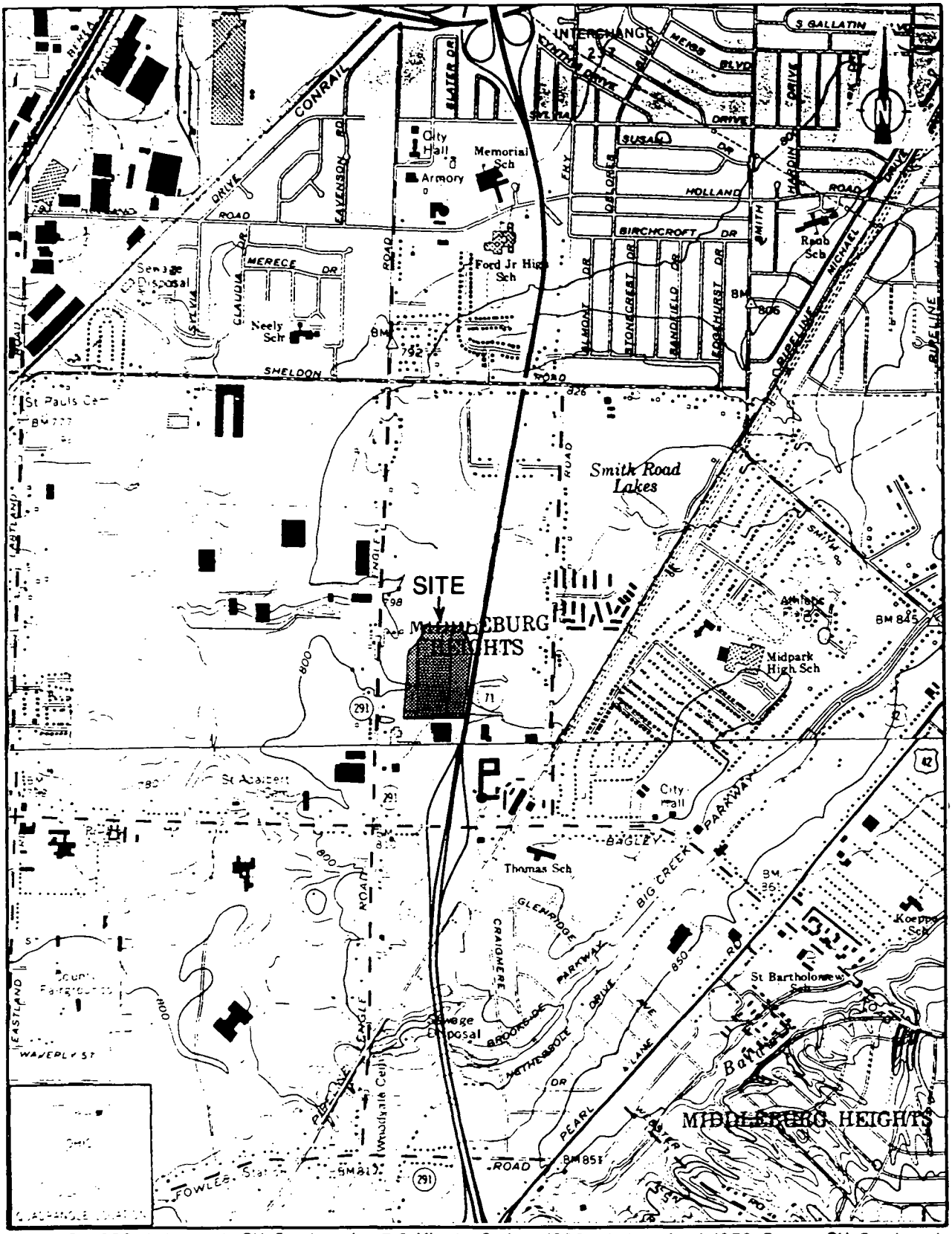
2.2 SITE DESCRIPTION

The Abrams site, which had formerly been an 11-acre floodwater and holding pond, now consists of a 4-acre floodwater pond and an approximately 7-acre filled area. The 4-acre holding pond is owned by the City of Middleburg Heights, and the filled area is owned by Engle Road Association (Cuyahoga County 1990). The Abrams site is located west of Interstate 71, approximately 450 feet north of the Bagley Road exit, in the city of Middleburg Heights, Cuyahoga County, Ohio (T.16N., R.14W.) (see Figure 2-1 for site location). The Abrams site is located in a developing commercial area surrounded by residential areas. The site is approximately 10 miles southwest of downtown Cleveland.

A 4-mile radius map of the Abrams site is provided in Appendix A.

2.3 SITE HISTORY

The Abrams site was originally part of a farm owned by Andrew H. Rosbough (Cuyahoga County 1990). In 1965, Great Lakes Construction Company approached Rosbough to purchase fill material from his farm to be used in the construction of an embankment along Interstate 71 (City of Middleburg Heights 1965). Rosbough requested a permit from



SOURCE: USGS, Lakewood, OH Quadrangle, 7.5 Minute Series, 1963, photorevised 1979; Berea, OH Quadrangle, 7.5 Minute Series, 1963, photorevised 1979.

SCALE

0 0.5 1 MILE

FIGURE 2-1 SITE LOCATION

Middleburg Heights Zoning Board of Appeals to dig a holding pond in the northeastern portion of his farm along the easement of Interstate 71 to provide soils for construction of the Interstate 71 embankment (City of Middleburg Heights 1965). Rosbough stated that the holding pond would help relieve the existing flooding problem in the area and provide him with a source of irrigation water for his farm (Rosbough 1965). Middleburg Heights Zoning Board of Appeals issued a permit on April 20, 1965, for the excavation of an approximately 15-acre area (1,025 feet long by 525 feet wide), 530 feet east of Engle Road. The depth of the excavated area was not to exceed 30 feet (City of Middleburg Heights 1965). In a letter dated January 31, 1966, Rosbough informed the city of Middleburg Heights that Great Lakes Construction Company was digging in hard sandstone, and Rosbough requested permission to use blasting materials to complete the excavation (Rosbough 1966). Middleburg Heights Zoning Board of Appeals denied Rosbough's request on March 3, 1966 (Rosbough 1966). It is not known if excavation continued at the site or if the holding pond was excavated to the specifications stated by the Zoning Board of Appeals in its April 20, 1965, permit.

In 1972, Engle Development Company (EDC) purchased Rosbough's property located between Engle Road and Interstate 71, including the holding pond and approximately 26 additional acres (Cuyahoga County 1990).

In early 1973, EDC allowed Boyas Excavating, Inc., to fill in the holding pond. Boyas Excavating, Inc., had a contract to haul foundry sand from Ford Motor Corporation's engine plant in Brook Park, Ohio, and planned to use this sand to fill in the holding pond (City of Middleburg Heights 1965).

On June 26, 1973, John E. Green, P.E., of Boyas Excavating, Inc., requested that a variance of Ordinance #1973-107, which prevented the use of foundry sand as fill material, be applied to EDC's property (City of Middleburg Heights 1973). Middleburg Heights City Council denied Green's request on November 27, 1973, stating that foundry sand creates severe problems for the city's sewer lines and that it has the potential of polluting area soils and streams (City of Middleburg Heights 1973). The council also expressed concern that the filling of the holding pond on EDC's property with any type of fill material would cause flooding

problems for the entire area. The council stated that no filling could occur without a permit from Middleburg Heights Zoning Board of Appeals (City of Middleburg Heights 1973).

On April 5, 1977, EDC and Boyas Excavating, Inc., filed a federal lawsuit against the City of Middleburg Heights and other defendants claiming that the City of Middleburg Heights had "caused the confiscation of the Plaintiff's property for public use without fair compensation or ascertainable public need or benefit" (United States District Court [USDC] 1977). In response to this lawsuit, the City Council of Middleburg Heights introduced and passed Resolution #1979-44 on March 27, 1979. This resolution authorized the settlement of federal court case #C-77-345, Boyas Excavating, Inc., versus City of Middleburg Heights. The settlement allowed the city to purchase 4 acres of the southern end of the 11-acre holding pond, which included existing 48-inch and 72-inch culverts that drain storm water from Interstate 71 (City of Middleburg Heights 1979). EDC agreed to replace an existing 18-inch corrugated pipe, which had served as an outlet from the holding pond into a ditch west of the pond, with a 36-inch pipe that would be better able to handle the additional outflow resulting from the filling of EDC's portion of the holding pond (City of Middleburg Heights 1979). The city of Middleburg Heights also agreed to allow Boyas Excavating, Inc., to use foundry sands to fill EDC's portion of the holding pond (City of Middleburg Heights 1979).

The City of Middleburg Heights purchased the 4 acres of the holding pond, now known as Lake Engle, from EDC on June 20, 1979 (Cuyahoga County 1990). At the time of the FIT SSI, the City of Middleburg Heights still owned the 4 acres of the holding pond and was using it as a storm water retention pond.

The filling of EDC's portion of the holding pond occurred sometime during the early 1980s. Boyas Excavating, Inc., used fired foundry sands from Ford Motor Corporation's Brookpark engine plant (SCS Engineers 1989).

On March 7, 1985, EDC sold its portion of the holding pond, approximately 7 acres, and an additional 26 acres located to the north and west of the pond, to Motel Management Company (Cuyahoga County 1990). Motel Management bought EDC's property with the intention of building a

motel; however, they were unable to secure investors. They eventually sold their 33 acres to S & W Realty II, now known as Engle Road Association, on March 16, 1988 (Cuyahoga County 1990).

In early 1989, Marriott Corporation expressed an interest in purchasing 4.66 acres of the 33-acre parcel of land as a possible location of its Cleveland Courtyard Hotel (SCS Engineers 1989). The 4.66 acres that Marriott was interested in was part of the filled area located just north of Lake Engle. Marriott contracted SCS Engineers, of Reston, Virginia, to perform a preliminary environmental site assessment of the proposed Cleveland Courtyard site (SCS Engineers 1989).

SCS Engineers performed a site assessment of the site in two phases. Phase I was conducted on March 4, 1989, and consisted of a review of the site history and available U.S. EPA information (SCS Engineers 1989). Phase II was conducted on May 24, 1989, and included the sampling of three on-site soil borings and the conversion of one boring into a monitoring well, which was also sampled (SCS Engineers 1989). SCS Engineers reported the following results to Marriott on July 13, 1989:

> The test results for the soil samples indicated elevated levels of lead and cadmium. However, none of the samples failed the EP toxicity test; the samples tested would not be considered hazardous waste. The groundwater sample contained detectable amounts of arsenic, lead, and cyanide. The concentration of lead found exceeded the Ohio and U.S. EPA drinking water standards (SCS Engineers 1989) (see Appendix B for analytical results of SCS Engineers-collected on-site soil and groundwater samples).

Marriott did not purchase the 4.66 acres, but is still interested in this property (Montano 1990).

At the time of the FIT SSI, Engle Road Association still owned the 33-acre parcel of land, which includes the approximately 7-acre filled area. The Abrams site consists of the approximately 7 acres of filled area and the remaining 4 acres now known as Lake Engle. The association developed the areas west of the Abrams site and constructed Engle Lake

Drive, an access road that runs east from Engle Road and forms a loop around just west of the Abrams site. Two one-story office buildings (completed in spring 1990) and a Federal Express office (operating since 1989), are all located just west of Engle Lake Drive (Newman 1990). At the time of the FIT SSI, the Abrams site was still undeveloped.

No further state or federal action has occurred at this site.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the Abrams site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided.

The SSI was conducted in accordance with the U.S. EPA-approved work plan with the following exceptions. FIT did not collect the four proposed groundwater samples. The one existing on-site monitoring well could not be located at the time of the FIT SSI; it is assumed that it has either been removed or covered by sand. FIT was unable to use the geoprobe unit to collect the other three groundwater samples because of a problem with the vehicle.

An x-ray fluorescence spectrometer (X-MET) was used to determine all of the soil/sediment sampling locations. Two proposed sediment samples were not collected because X-MET readings at these locations were not high enough to warrant sampling. FIT replaced the two proposed sediment samples with two soil samples at locations indicated by the X-MET to be better sampling locations. Finally, FIT collected nine soil samples rather than the proposed seven samples in order to more completely characterize wastes on-site.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the Abrams site is provided in Appendix C.

3.2 SITE REPRESENTATIVE INTERVIEWS

Two separate site representative interviews were conducted by Charles Hall, FIT team leader. The first interview was conducted on-site at 9:40 a.m. on October 17, 1990. The two site representatives present were Sharon Newman, an attorney for Engle Road Association, and David Coburn of Decco Consulting, a firm representing ERA. FIT team members Larry Nelson and Nathan Russell were also present at this interview.

The second site representative interview, also conducted by Hall, was with Peter Hull, Law Director for the city of Middleburg Heights, at 2:00 p.m. on October 17, 1990, in the Middleburg Heights council chamber. FIT team member Joe Corns also was present at this interview.

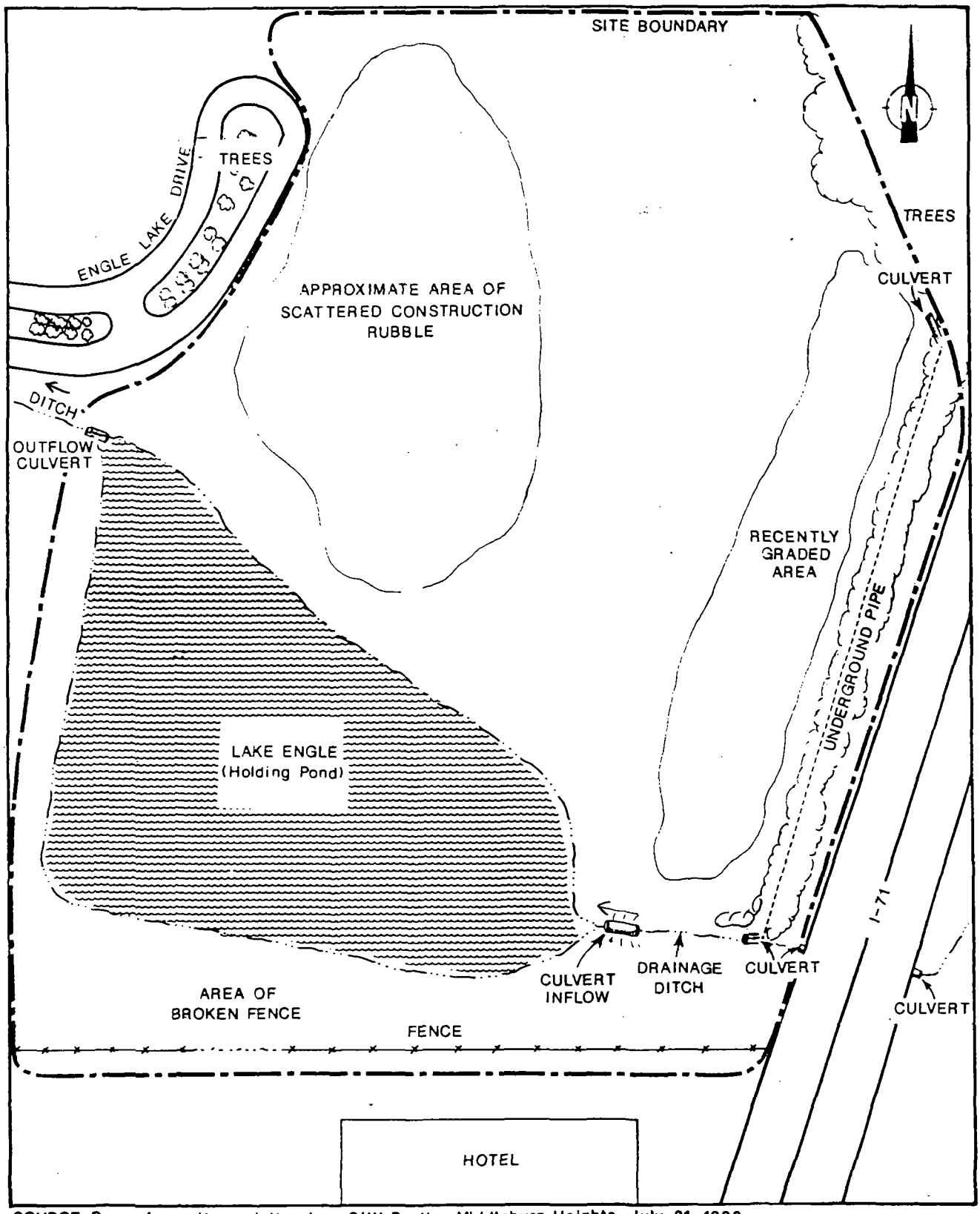
These two interviews were conducted in order to obtain information needed by FIT to complete the SSI report.

3.3 RECONNAISSANCE INSPECTION

Following the site representative interviews, FIT conducted a reconnaissance inspection of the Abrams site and surrounding area in accordance with Ecology and Environment, Inc. (E & E), health and safety guidelines. The reconnaissance inspection began at 11:47 a.m. on October 17, 1990, and included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site activities and to make observations to aid in characterizing the site. FIT was accompanied by Coburn during the reconnaissance inspection.

Reconnaissance Inspection Observations. The Abrams site is a rectangularly shaped parcel of land approximately 11 acres in size that consists of a 4-acre holding pond known as Lake Engle and an approximately 7-acre filled area. The area surrounding the Abrams site is commercial, with only a few residences in the immediate area. At the time of the FIT SSI, the Abrams site was undeveloped.

The Abrams site is approximately 1,000 feet north-south and 600 feet east-west. Interstate 71 forms the site's east border, and a fence forms the south border. The site is bordered on the northwest by Engle Lake Drive, and on the north and west by a property owned by Engle Road Association (see Figure 3-1 for site features).



SOURCE: Drawn from site vacinity plan, S/W Realty, Middleburg Heights, July 31, 1989.

SCALE

0 100 200 300 400 FEET

FIGURE 3-1 SITE FEATURES

The 7-acre filled area, which is owned by Engle Road Association, is located in the northern half of the site. The surface of the filled area has been graded and is relatively flat. However, the surface elevation of this area is approximately 8 to 10 feet higher than the surrounding areas, and slopes steeply along its southern and western edges, which are adjacent to Lake Engle and Engle Lake Drive, respectively. The filled area is only sparsely vegetated.

FIT observed chunks of concrete and other construction debris scattered over an approximately 2-acre area east of Engle Lake Drive and extending from near the northern site boundary to just before Lake Engle. FIT also observed an area along the eastern side of the site that appeared to have been recently graded. This area was located approximately 75 feet west of Interstate 71 and appeared to be approximately 500 feet long by 100 feet wide.

Lake Engle, which is owned by the City of Middleburg Heights, is located in the southwest portion of the site. FIT observed geese swimming in the lake and deer tracks along the northwest side of the lake. There is an inflow culvert in the southeast corner of Lake Engle, and an outflow culvert in the northwest corner. The inflow culvert appears to discharge surface water runoff collected by ditches located on either side of Interstate 71 into Lake Engle. The ditch west of Interstate 71 appears to flow through a culvert located in the northeast corner of the site and into an underground pipe that runs along the eastern side of the filled area. This ditch releases water through a culvert into another ditch located approximately 90 feet east of Lake Engle. This second ditch runs perpendicular to the first. This ditch runs approximately 80 feet to the west before it flows through a second culvert and into Lake Engle.

The outflow from Lake Engle flows through a culvert in the northwest corner of the lake and into a ditch that runs west along the south side of Engle Lake Drive. According to United States Geological Survey (USGS) topographic maps of the area, the ditch leads to a wetlands area approximately 1 2/10 miles west of the site (USGS 1963b).

There is a broken fence along the southern edge of the site. There are no other barriers to prevent access to the Abrams site.

FIT photographs from the SSI of the Abrams site are provided in Appendix D.

3.4 SAMPLING PROCEDURES

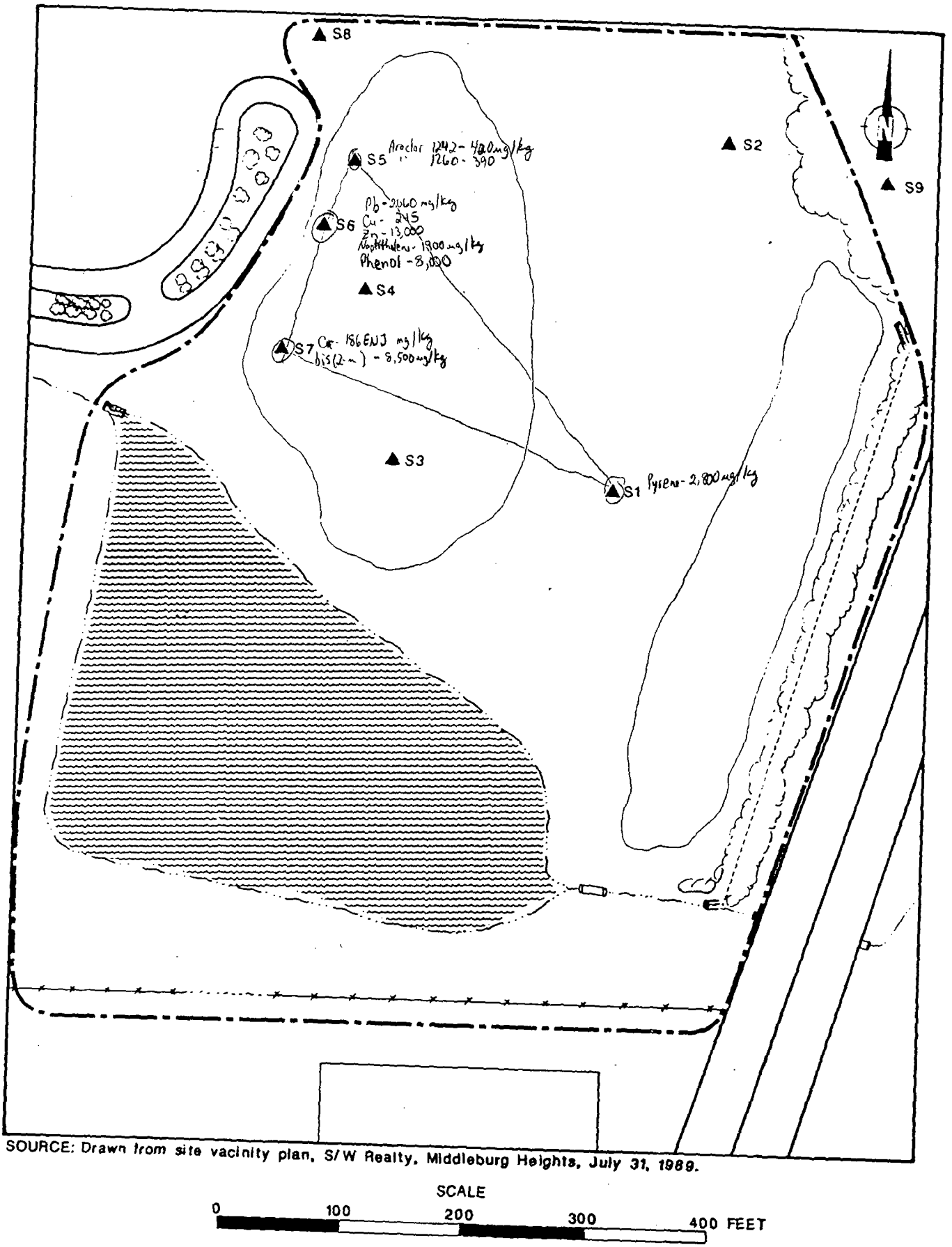
Samples were collected by FIT on October 18, 1990, at locations selected through field screening of soils for arsenic, copper, lead, zinc, and chromium. The field screening was performed by using a portable X-MET 880, manufactured by Outokumpu Electronics, Inc. The Abrams site was divided into a grid, and the X-MET was used to screen soils every 25 yards. FIT screened 77 potential sampling locations on October 17, 1990. The areas with the eight highest readings were then sampled on October 18, 1990. A ninth sample was collected as a background sample.

The soil samples were collected to determine whether TCL compounds or TAL analytes were present at the Abrams site. The TCL compounds and TAL analytes are included with corresponding quantitation/detection limits in Appendix D. Site representatives declined offered portions of the FIT-collected on-site samples.

Soil Sampling Procedures. All of the FIT-collected soil samples were collected on-site except for sample S9, which was collected from the ERA property located north of the site. Soil sample S9 was collected from beneath a tree approximately 50 feet northwest of the northeastern site boundary in an area that appeared to be undisturbed (see Figure 3-2 for soil sampling locations). This sample was collected for use as a potential background sample to determine the common soil constituents of the area.

Sample S1 was a surface soil sample collected approximately 65 feet west of the recently graded area on the east side of the filled area, and approximately 500 feet north of the site's southern border. Sample S2 was collected approximately 110 feet southwest of the northeast corner of the site. Sample S2 was also a surface soil sample.

Sample S3 was a surface soil sample collected from the southeastern portion of the area covered with concrete and other construction debris. Sample S3 was collected from a sampling location approximately 185 feet southeast of Engle Lake Drive and 95 feet northeast of the northern shore of Lake Engle.



SOURCE: Drawn from site vacinity plan, S/W Realty, Middleburg Heights, July 31, 1989.

FIGURE 3-2 SOIL SAMPLING LOCATIONS

Samples S4, S5, S6, and S7 were all surface soil samples collected from the western portion of the site, all within 100 feet of Engle Lake Drive. These samples were collected from the area covered with concrete and other construction debris. Sample S8 was a surface soil sample collected from along the northern site boundary, approximately 55 feet north of the end of Engle Lake Drive.

Stainless steel trowels, spoons, and bowls were used to collect each of the nine soil samples. The volatile organic fractions for each of these samples were collected first by transferring the sample material directly from the trowel into the appropriate sample bottle (E & E 1987). The remaining portions of each sample were then placed into a bowl and debris removed before being placed into the appropriate sample bottles.

Standard E & E decontamination procedures were adhered to during the collection of all soil samples. The procedures included the scrubbing of all equipment (e.g., trowels, spoons, and bowls) with a solution of detergent (Alconox) and distilled water, and triple-rinsing the equipment with distilled water before the collection of each sample (E & E 1987). All soil samples were packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, all soil samples were analyzed using the U.S. EPA Contract Laboratory Program (CLP).

4. ANALYTICAL RESULTS

This section presents results of the chemical analysis of FIT-collected soil samples for TCL compounds and TAL analytes. All samples were analyzed for volatile organics, semivolatile organics, pesticides/polychlorinated biphenyls (PCBs), metals, and cyanides. Complete chemical analysis results of FIT-collected soil samples are provided in Table 4-1. In addition, significant tentatively identified compounds (TICs) detected in the analysis of FIT-collected samples are also provided in Table 4-1.

Quantitation/detection limits used in the analysis of soil samples are provided in Appendix E.

The analytical data for the chemical analysis of soil samples collected for this SSI have been reviewed by U.S. EPA for compliance with terms of CLP, and the review has been approved by U.S. EPA. The analytical data have also been reviewed by FIT for validity and usability. Any additions, deletions, or changes to the data have been incorporated in the chemical analysis results tables presented in this section.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL SAMPLES

SSI conducted on 10/17 & 18/90

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6
Date	9/26/90	9/26/90	9/26/90	9/26/90	9/26/90	9/26/90
Time	1540	1310	1330	1430	1450	1500
CLP Organic Traffic Report Number	EHJ53	EHJ54	EHJ55	EHJ56	EHJ57	EHJ58
CLP Inorganic Traffic Report Number	MEGR87	MEGR88	MEGR89	MEGR90	MEGR91	MEGR92
Compound Detected (values in µg/kg)						
Volatile Organics						
tetrachloroethene	--	6	1J	4J	2J	11
1,1,2,2-tetrachloroethane	14	--	--	--	--	--
Semivolatile Organics						
di-n-butylphthalate	--	--	--	--	95J	--
butylbenzylphthalate	--	96J	--	--	150J	330J
bis(2-ethylhexyl)phthalate	--	--	190J	--	--	--
Pesticides/PCBs						
4,4'-DDE	--	--	--	--	--	41
4,4'-DDD	--	--	--	--	--	34
4,4'-DDT	--	--	--	--	--	350
TICs†						
benzaldehyde (00100-52-7)	400J	1,000J	2,300J	--	380J	660J
Analyte Detected (values in mg/kg)						
aluminum	9,150	5,670	6,070	9,360	9,500	8,390
antimony	19NJ	4.7BNJ	10BNJ	14.1NJ	14.8NJ	17.6NJ
arsenic	24.6NJ	15.8NJ	31NJ	34.7NJ	18.5NJ	29.8NJ

S7? S8? S9?

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6
barium	54.9	42.3B	38.9B	48.1	99.8	96.5
beryllium	0.41B	0.6B	0.6B	0.63B	0.65B	0.49B
cadmium	--	0.72B	--	--	--	--
calcium	2,280	8,170	9,620	1,260	997B	4,200
chromium	10.7	12.1	8.8	13	13	11.9
cobalt	9.7B	5.6B	6.5B	10.4B	10.4B	9.4B
copper	54.6N*EJ	1,160N*EJ	611N*EJ	31.1N*EJ	16.3N*EJ	18.7N*EJ
iron	26,100	18,100	18,600	26,300	39,300	27,900
lead	29.6	533	201	33.7	26.8	35.9
magnesium	2,160	1,910	2,300	2,230	1,700	2,300
manganese	413NJ	346NJ	334NJ	491NJ	828NJ	657NJ
nickel	19.1	24.1	16.8	19.6	18.7	20
potassium	1,260	697B	761B	1,160	892B	738B
sodium	56.7BJ	102BJ	206B	46.9BJ	55BJ	48.4BJ
vanadium	20.9	12.5	13.3	20.8	22.6	17.5
zinc	81.7EJ	3,160EJ	1,550EJ	111EJ	91.9EJ	95.2EJ

-- Not detected.

Table 4-1 (Cont.)

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semi-quantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section presents discussions of data and information pertaining to potential migration pathways and targets of TCL compounds and TAL analytes that are possibly attributable to the Abrams site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

Analysis of FIT-collected soil samples revealed the presence of several TCL compounds and TAL analytes, including lead (2,060 mg/kg in sample S6), copper (245 mg/kg in sample S6), chromium (186ENJ mg/kg in sample S7), zinc (13,200 mg/kg in sample S6), Aroclor 1242 (420 µg/kg in sample S5), Aroclor 1260 (390 µg/kg in sample S5), bis(2-ethylhexyl) phthalate (8,500 µg/kg in sample S7), pyrene (2,800 µg/kg in sample S1), naphthalene (1,900 µg/kg in sample S6), and phenol (8,000 µg/kg in sample S6).

does not match results in Table 4-1

These TCL compounds and TAL analytes are potentially attributable to the Abrams site because they were detected in on-site samples at levels above background. The TAL compounds and TAL analytes naphthalene, pyrene, bis(2-ethylhexyl)phthalate, phenanthrene, phenol, lead, copper, chromium, and zinc are common constituents of foundry sands (E & E 1989).

There is a potential for these TCL compounds and TAL analytes to migrate from the Abrams site to area groundwater based on the following information.

- TCL compounds and TAL analytes were detected in on-site soil samples at levels above background levels.

- Foundry sands were deposited directly onto the sandstone bedrock.

- There is no known liner at the Abrams site (see Appendix F for on-site soil borings).

The potential for TCL compounds and TAL analytes to migrate from the Abrams site to area groundwater is also based on the following geological information. The geology in the area of the Abrams site consists of a surface layer of clay over several feet of unconsolidated sand and sandy clay. According to area well logs, the unconsolidated surface deposits range in depth from 6 to 31 feet (see Appendix F for well logs of the area of the site). The bedrock in the site area consists of Mississippian-age sandstone of the Berea Formation. According to area well logs, the bedrock in the site area ranges in depth from 8 to 31 feet. Area well logs also indicate that the majority of wells draw water from the sandstone bedrock at depths ranging from 33 to 43 feet. The sandstone aquifer is considered the aquifer of concern (AOC). The nearest well that draws from this aquifer is located approximately 2/10 miles west of the site. ~1000'

According to on-site soil borings completed by SCS Engineers, fine gray sand exists both on the surface of the Abrams site and at depths ranging from 29.8 to 33.5 feet (see Appendix G for on-site soil borings). The sandstone bedrock lies directly below the layer of fine gray sand. The soil boring samples also indicate that groundwater is present at the site at a depth of 26 feet. The regional groundwater flow in the site area is believed to be in a north-northwest direction (Stein 1965). However, local groundwater flow may discharge into Lake Engle. → how? gw levels are 26' bgs → much lower than lake levels & gw is not under confining pressure

There are approximately 262 persons living within a 3-mile radius of the site and using private wells who could potentially be affected by the migration of TCL compounds and TAL analytes from the Abrams site to groundwater in the area (Meder 1990). The remaining population within a

3-mile radius of the site is served by municipal wells located outside of a 3-mile radius of the site.

5.3 SURFACE WATER

No surface water samples were collected during the FIT SSI of the Abrams site; however, a potential does exist for TCL compounds and TAL analytes to migrate from the filled area to Lake Engle. This potential is based on the following information.

- The northern shore of Lake Engle is in direct contact with the fill material, which has been shown to contain TCL compounds and TAL analytes at levels above background.

- The filled area is at a higher elevation than Lake Engle, thereby causing surface water runoff to flow into Lake Engle to the southwest or into the drainage ditch east of the filled area, which eventually leads to Lake Engle.

- Since on-site soil borings indicate that the original holding pond was excavated to a depth of approximately 33.5 feet and that the groundwater at the Abrams site is present at a depth of approximately 26 feet, FIT believes that the groundwater, which may be affected by the migration of TCL compounds and TAL analytes detected in on-site soil samples, discharges to Lake Engle.

There is an outflow located in the northwest corner of Lake Engle. This outflow releases water from the lake into a drainage ditch that flows west for approximately 1/2 mile along the southern edge of Engle Lake Drive. The water from this ditch then flows through a culvert under Engle Road and continues through another drainage ditch in a northwestern direction for approximately 2/10 miles. The water then flows west through an underground pipe approximately 1/2-mile long and then flows into a wetlands area. The wetlands drain into Abrams Creek, which flows for approximately 4 miles before converging with the Rocky River. Abrams Creek, which flows to the west, and the Rocky River,

which flows to the north, are used for fishing and other recreational purposes (Johnson 1990).

5.4 AIR

A release of TCL compounds or TAL analytes to the air was not documented during the SSI of the Abrams site. During the reconnaissance inspection, FIT site-entry instruments (HNu, combination oxygen meter and explosimeter, and colorimetric monitoring tubes for hydrogen cyanide) did not detect deviations from background concentrations at the site. In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A potential does exist, however, for TCL compounds and TAL analytes to migrate from the site via windblown particulates. This potential is based on the following information.

- TCL compounds and TAL analytes were detected in surface soil samples at levels above background.
- The Abrams site consists of sandy soils that are piled several feet above the natural ground level of the area.
- The Abrams site is only sparsely vegetated, which would allow for the migration of loose sands from the site via windblown particulates.

The population within a 4-mile radius of the site potentially affected by a release of TCL compounds and TAL analytes to the air is approximately 100,091 persons. This population was calculated by counting houses on USGS topographic maps within a 4-mile radius of the site (USGS 1963, 1963a, 1963b, 1963c, 1963d, 1963e) and multiplying this number by a persons-per-household value of 2.62 for Cuyahoga County (U.S. Bureau of the Census 1982).

5.5 FIRE AND EXPLOSION

According to federal, state, and local file information reviewed by FIT, no documentation exists of an incident of fire or explosion at the

Abrams site. According to FIT observations and site-entry equipment readings, no potential for fire or explosion existed at the site at the time of the SSI.

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, observations made during the SSI, and interviews with the site representatives, no incidents of direct contact with TCL compounds or TAL analytes at the Abrams site have been documented. However, a potential for direct contact does exist at the Abrams site based on the following information.

- TCL compounds and TAL analytes were detected in on-site surface soil samples at levels above background.
- The Abrams site is not completely fenced, and the foundry sands are easily accessible to the public.
- The immediate area surrounding the Abrams site is in the process of being developed; therefore, more people are in the vicinity of the site.

The population within a 1-mile radius of the Abrams site potentially affected by direct contact with TCL compounds and TAL analytes at the site is approximately 5,992 persons. This population was calculated by counting houses on USGS topographic maps within a 1-mile radius of the site (USGS 1963b, 1963c) and multiplying this number by a persons-per-household value of 2.62 for Cuyahoga County (U.S. Bureau of the Census 1982).

6. REFERENCES

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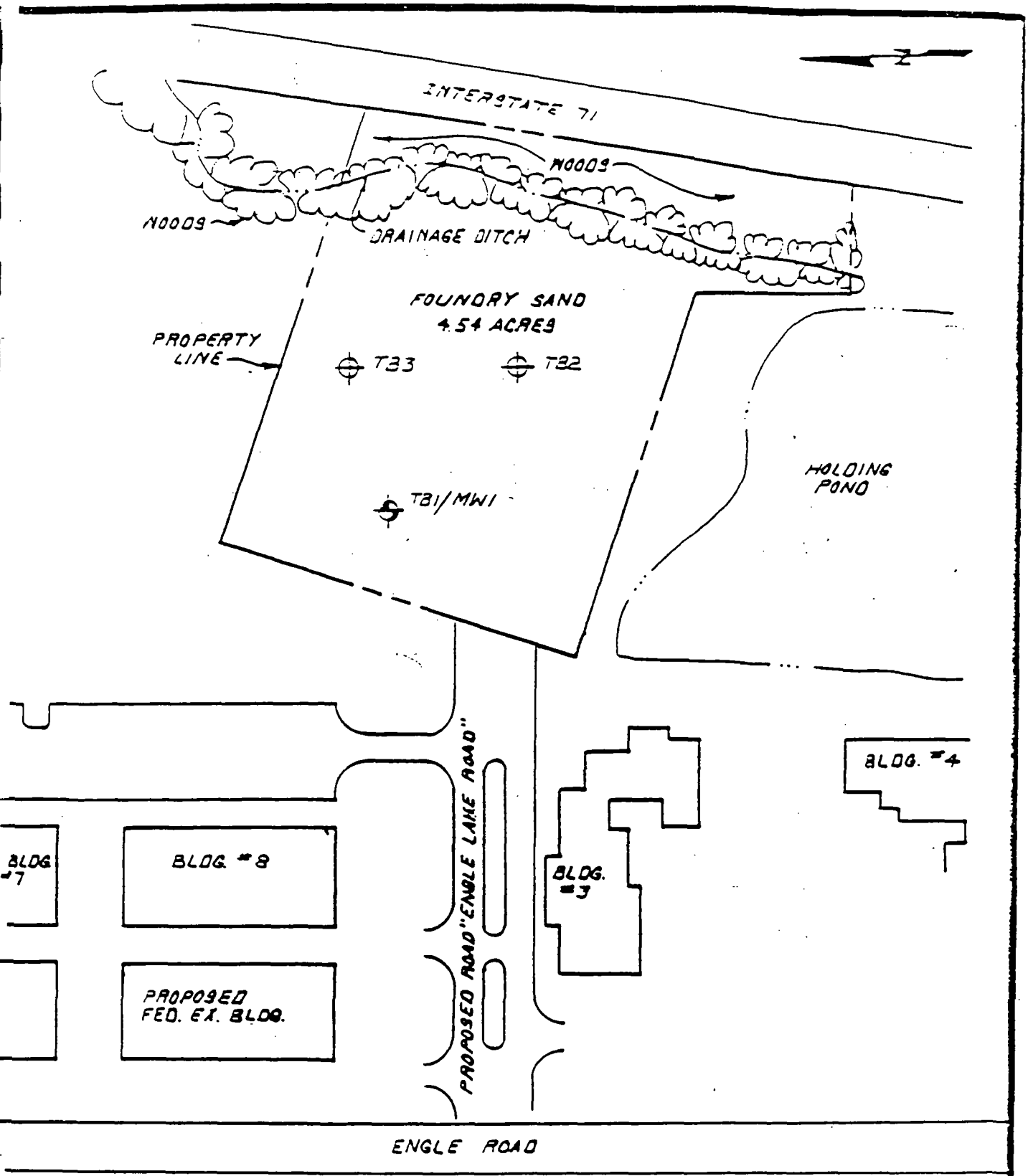
_____, 1963e, photorevised 1979, Broadview Heights, Ohio Quadrangle, 7.5 Minute Series: 1:24,000.

6340:10

APPENDIX A

SITE 4-MILE RADIUS MAP



NOTE: NOT TO SCALE

Appendix I--Site Plan
Prepared For: Marriott Corporation
Project No.: 288049.04
Date: July 7, 1989

SCS ENGINEERS

SCS
ANALYTICAL
LABORATORY

2560 WALNUT AVENUE
LONG BEACH, CALIFORNIA
(213) 595-8324
FAX (213) 595-1679

MEMO

To: Doug Anderson

From: Curtis B. Jenkins

June 30, 1989

Job No.: 0288049.04

LABORATORY REPORT

Samples: Seventeen (17) samples; two (2) waters and fifteen (15) soil samples from Marriott Cleveland Airport, received 6/17/89, analyzed 6/30/89.

Sample ID	CN^- (335.2)
	--mg/kg--
Composite CS-1	0.50
Composite CS-2	1.5
Copmosite CS-3	1.1
	--mg/L--
TB1/MW1 & WS-1	0.26

Metals, EPA 8010 & EPA 8020 - see attached sheets

David Sincerbeaux
Chemist

Ken LaConde
Laboratory Director

SCS
ANALYTICAL
LABORATORY

Sample I.D.: Composite CS-1
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Soil
Project: 0288049.04
File #: mariot1.rep

Compound	EPA Number	EP TOX Result	D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	0.04	0.02
Barium	7080	ND	0.5
Cadmium	7130	ND	0.1
Chromium	7160	ND	0.3
Lead	7420	ND	1
Mercury	7471	ND	0.05
Selenium	7740	ND	0.02
Silver	7760	ND	0.2
Nickel	7520	ND	0.6

Compound	EPA Number	TTLC Result	D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	3.5	2
Barium	7080	69.5	1
Cadmium	7130	14.2	1
Chromium	7160	40.7	3
Lead	7420	761	7
Mercury	7471	ND	0.009
Selenium	7740	0.21	0.2
Silver	7760	2.5	2
Nickel	7520	45.7	6

ND - Not Detected
D.L. Detection Limit

ND - Not Detected
D.L. Detection Limit

SCS
ANALYTICAL
LABORATORY

Sample I.D.: Composite CS-2
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Soil
Project: 0288049.04
File #: mariot1.rep

Compound	EPA Number	EP TOX Result	D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	ND	0.02
Barium	7080	0.7	0.5
Cadmium	7130	ND	0.1
Chromium	7160	ND	0.3
Lead	7420	ND	1
Mercury	7471	ND	0.05
Selenium	7740	ND	0.02
Silver	7760	ND	0.2
Nickel	7520	ND	0.6

Compound	EPA Number	TTLC Result	D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	3.3	2
Barium	7080	86.4	1
Cadmium	7130	30.6	1
Chromium	7160	70.6	3
Lead	7420	1270	7
Mercury	7471	ND	0.009
Selenium	7740	ND	0.2
Silver	7760	5.0	2
Nickel	7520	31.0	6

ND - Not Detected
D.L. Detection Limit

SCS
ANALYTICAL
LABORATORY

Sample I.D.: Composite CS-3
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Soil
Project: 0288049.04
File #: mariot1.rep

Compound	EPA Number	EP TOX Result	EP TOX D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	ND	0.02
Barium	7080	0.94	0.5
Cadmium	7130	ND	0.1
Chromium	7160	ND	0.3
Lead	7420	ND	1
Mercury	7471	ND	0.05
Selenium	7740	ND	0.02
Silver	7760	ND	0.2
Nickel	7520	ND	0.5

Compound	EPA Number	TTLC Result	TTLC D.L
		-----mg/kg (ppm)-----	
Arsenic	7060	2.1	2
Barium	7080	68.6	1
Cadmium	7130	34.9	1
Chromium	7160	64.4	3
Lead	7420	1480	7
Mercury	7471	ND	0.009
Selenium	7740	0.24	0.2
Silver	7760	6.2	2
Nickel	7520	30.1	6

ND - Not Detected
D.L. Detection Limit

IC ANALYTICAL LABORATORY
[illegible]

Sample I.D.: TB1/MW1 & WS-1
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Water
Project: 0288049.04
File #: mariot1.rep

Compound	EPA Number	Result	D.L.
		-----mg/L (ppm)-----	
Arsenic	7060	0.041	0.02
Barium	7080	ND	0.5
Cadmium	7130	ND	0.005
Chromium	7160	ND	0.1
Lead	7420	0.062	0.005
Mercury	7471	ND	0.009
Selenium	7740	ND	0.02
Silver	7760	ND	0.03
Nickel	7520	ND	0.1

ND - Not Detected
D.L. Detection Limit

SC
ANALYTICAL
LABORATORY

Sample I.D.: TB3-S4 & TB3-S5
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Soil
Project #: 0288049.04
File #: mariot1.rep

Compound	Result	D.L.
	----ug/kg (ppb)----	
Bromomethane	ND	50
Bromodichloromethane	ND	5
Bromoform	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	50
2-Chloroethylvinyl Ether	ND	50
Chloroform	ND	5
Chloromethane	ND	50
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,2-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Methylene Chloride	ND	50
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl Chloride	ND	50

D.L. = Detection Limit
ND = Not Detected

SCS
ANALYTICAL
LABORATORY

Sample I.D.: TB3-S4 & TB3-S5
Date Received: 6/17/89
Date Analyzed: 6/30/89
Matrix: Soil
Project #: 0288049.04
File #: mariot1.rep

Compound	Result	D.L.
	-------ug/kg (ppb)-------	
Benzene	65	10
Chlorobenzene	ND	10
Ethylbenzene	13	10
Toluene	64	10
Xylenes	81	10
1,2-Dichlorobenzene	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10

D.L. = Detection Limit
ND = Not Detected

APPENDIX B

ANALYTICAL RESULTS OF SCS COLLECTED ON-SITE SOIL AND WATER SAMPLES

APPENDIX C

U.S. EPA FORM 2070-13

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Lake Abrams Holding Ponds	East of Engle Lake Drive along I-71 approximately 450 ft. N. of Bagley Rd. Exit

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Middleburg Heights	OH	43536	Cuyahoga	035	20

09 COORDINATES LATITUDE	LONGITUDE
41 22 00.N	081 48 53.W

10 TYPE OF OWNERSHIP (Check one)
■ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
10 17 90 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	~1973 (BEGINNING YEAR) ~1985 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ■ B. EPA CONTRACTOR Ecology & Environment (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Charles Hall	Environmental Engineer	E & E	(312) 663-9415
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Joe Corns	Civil Engineer	E & E	(312) 663-9415
Larry Nelson	Biologist	E & E	(312) 663-9415
Craig Smith	Geologist	E & E	(312) 663-9415
Nathan Russell	Geologist	E & E	(312) 663-9415
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Sharon Newman	Attorney	Cleveland, OH	(216) 696-3311
David Coburn	Consultant	Cleveland, OH	(216) 749-3000
Peter Hull	Law Director For the City of Middleburg Heights	Middleburg Height, OH	(216) 234-8811
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	9:00	Mostly sunny, light to moderate wind ~70°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Dan Markowitz	OEPA / NEDO	(216) 425-9171

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Karen Sadler	E&E	FIT	(312) 663-9415	1 12 91 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A SOLID
- [x] B POWDER, FINES
- [x] C SLUDGE
- [ ] D OTHER _____ (Specify)
- [ ] E SLURRY
- [x] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS: Unknown
CUBIC YARDS: Unknown
NO. OF DRUMS: Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [x] D PERSISTENT
- [x] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			Waste characteristics were identified through analysis of soil/sediment samples collected by FIT on October 18, 1990.
OLW	OILY WASTE			
SOL	SOLVENTS	Unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		
IOC	INORGANIC CHEMICALS	Unknown		
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	See Analytical Data tables 4-1 and 4-2 in narrative.				
	See Also Sec. 2-3				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Laboratory Analytical Data
FIT File info.
E&E site inspection October 17 & 18, 1990.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OHD	980510218

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: ~262
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5.2 of Narrative

01 ■ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: None
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5.3 of Narrative

01 ■ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: ~100,091
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5.4 of Narrative

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

See Section 5.5 of Narrative

01 ■ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: ~5,992
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5.6 of Narrative

01 ■ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: ~7.0 acres (Acres)
02 ■ OBSERVED (DATE: 10/18/90)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

See Section 4 of Narrative

01 ■ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: ~262
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5.2 of Narrative

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: 0
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

None reported or observed

01 ■ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: ~100,091
02 ☐ OBSERVED (DATE: _____)
04 NARRATIVE DESCRIPTION
■ POTENTIAL ☐ ALLEGED

See Section 5 of Narrative

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D980510218

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ■ J. DAMAGE TO FLORA — 02 □ OBSERVED (DATE: ____ __ __) ■ POTENTIAL □ ALLEGED
04 NARRATIVE DESCRIPTION
The site was only sparsely vegetated at the time of the FIT SSI. Surface soil samples collected on-site did contain TCL compounds and TAL analytes at levels above background level. The perliminary assessment dated 9/28/87 also states that the site was only sparsely vegetated. This indicates that there is a potential of damage to Flora

01 ■ K. DAMAGE TO FAUNA — 02 □ OBSERVED (DATE: _____) ■ POTENTIAL □ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
Although no damage to fauna has been reported or observed a potential does exist for fauna to become damaged by consuming contaminated Flora, direct contact, or by drinking potentially contaminated surface water. Deer tracks were observed on-site. Geese were observed in Lake Engle

01 ■ L. CONTAMINATION OF FOOD CHAIN — 02 □ OBSERVED (DATE: _____) ■ POTENTIAL □ ALLEGED
04 NARRATIVE DESCRIPTION
Potential exists for food chain contamination if humans or animals consume contaminated flora or fauna.

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 □ OBSERVED (DATE: _____) ■ POTENTIAL □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 100,091 — 04 NARRATIVE DESCRIPTION
The foundary sand is piled-up above the natural surface level. There is no liner to prevent contamination of groundwater, no cover to prevent blowing by wind, and no Fence to prevent direct contact.

01 ■ N. DAMAGE TO OFFSITE PROPERTY — 02 □ OBSERVED (DATE: _____) ■ POTENTIAL □ ALLEGED
04 NARRATIVE DESCRIPTION
There is a potential for contaminents to spread to off-site property by wind blown particles.

01 ■ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 □ OBSERVED (DATE: _____) ■ POTENTIAL □ ALLEGED
04 NARRATIVE DESCRIPTION
With the development of this area, new sewers have been installed just off-site. The surface level of the site is above, that of the rest of the area and therefore any contaminated run-off could potentially contaminate the near-by sewers.

01 □ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 □ OBSERVED (DATE: _____) □ POTENTIAL ■ ALLEGED
04 NARRATIVE DESCRIPTION
None reported or observed.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
None reported or observed

III. TOTAL POPULATION POTENTIALLY AFFECTED: ~100,091

IV. COMMENTS
The principal pathways by which TCL compounds or TAL analytes could migrate or potentially affect residents are groundwater, surface water, direct contact and air.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
Ecology and Environment FIT Files
Ecology and Environment site inspection log books

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
■ J. NONE				NONE

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
■ B. PILES	Unknown	
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
■ F. LANDFILL	Unknown	
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY.
- ☐ H. OTHER (Specify) None

05 OTHER

☐ A. BUILDINGS ON SITE

None

06 AREA OF SITE

~ 11.0 (Acres)

07 COMMENTS

None

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The Abrams site is unlined and there are piles of uncovered Foundary sands present.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS

The area is not fenced. The waste is not covered.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Ecology & Environment Inc.

Ecology & Environment site inspection log book.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D980510218

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ■	B. ☐	A. ☐	B. ☐	C. ■	A. ~10.5 (mi)
NON-COMMUNITY	C. ☐	D. ■	D. ☐	E. ☐	F. ☐ Unknown	B. ~2/10 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ■ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER	03 DISTANCE TO NEAREST DRINKING WATER WELL
~262	~2/10 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
26 (ft)	North/Northwest	26 (ft)	Unknown (gpd)	☐ YES ■ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

See Section 5.2 of Narrative and Appendix E

10 RECHARGE AREA		11 DISCHARGE AREA	
■ YES ☐ NO	COMMENTS: Permeable sand and gravel allows recharge through infiltration of rainwater	■ YES ☐ NO	COMMENTS: To Lake Engle

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

■ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Lake Engle	☐	On-Site (mi)
Abrams Creek	☐	~1.2 miles (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ~5,992 NO. OF PERSONS	B. ~31,747 NO. OF PERSONS	C. ~66,865 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: ~750 Feet (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
~12,127	~200 Feet (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The Abrams site is located in a small developing commercial area approximately 10 mile Southwest of downtown Cleveland. This small commercial area is surrounded by densely populated Cleveland suburbs.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D980510218

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ■ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ■ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
29.8 - 33.5 (ft)	Unknown (ft)	Unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
35 (in)	2.2 (in)	5-8 %	Southwest	< 3 %

09 FLOOD POTENTIAL	10
SITE IS IN N/A YEAR FLOODPLAIN	☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY N/A

11 DISTANCE TO WETLANDS (5 acre minimum)		12 DISTANCE TO CRITICAL HABITAT (of endangered species)
ESTUARINE	OTHER	N/A (mi)
A. N/A (mi)	B. 1.2 (mi)	ENDANGERED SPECIES: None in the area

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS	
		PRIME AG LAND	AG LAND
A. ~ 200 Feet (mi)	B. ~ 750 Feet (mi)	C. N/A (mi)	D. ~ 6.5 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

See Appendix A

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E File information and site inspection log book

U.S.G.S.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D980510218

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	9 soil samples	GULF Labs - New Orleans, CA - TCL BETZ Labs - The Woodlands, TX - TAL	Now Available
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNu	No readings above background on site
Combo Meter	20.5% O_2, 0% LEL on site
Rad - Mini	No readings above background on site
HCN Monitor	0 ppm on-site

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ☐ AERIAL

02 IN CUSTODY OF: Ecology & Environment Inc. Chicago, Il.
(Name of organization or individual)

03 MAPS ■ YES ☐ NO

04 LOCATION OF MAPS: Ecology & Environment Chicago, Il.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Soil descriptions of soil samples (See Table 4-1 and 4-2 of SSIR)

The X-Met was used to determine sample locations (See Sec. 3-3 of SSIR)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Laboratory analytical data

Ecology & Environment FIT Files and site inspection log books.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Engle Road Association	N/A	Unknown				
City of Middleburg Heights		15700 Bagley Road		Middleburg Heights	OH	44130

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
None						
None						

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Motel Management Co.	(216) 867-4013	2857 Riveria Drive		Akron	OH	
Engle Development Co.		4510 W. 160th Street		Cleveland	OH	
Andrew H. Rosbough	N/A	7055 Engle Road		Middleburg Heights	OH	44130

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Unknown						
Unknown						
Unknown						

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT File info. and site representative interview, Oct. 17, 1990

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: OHD980510218

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
City of Middleburg Heights	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
15700 Bagley Road	

05 CITY	06 STATE	07 ZIP CODE
Middleburg Heights	OH	44130

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
None	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Boyas Excavating Inc.	N/A

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
4100 Brookpark Road	

05 CITY	06 STATE	07 ZIP CODE
Cleveland	OH	

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
Unknown	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT File info. and site representative interview, Oct. 17, 1990

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
None Known -	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Ford Motor Corporation	(216) 676-7077		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
5600 Henry Ford Boulevard			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Brook Park	OH	N/A			

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Boyas Excavating Inc.	N/A		

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
4100 Brookpark Road			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Cleveland	OH				

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT File info. and site representative interview, Oct. 17, 1990.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	0980510218

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ D. SPILLED MATERIAL REMOVED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ F. WASTE REPACKAGED 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ H. ON SITE BURIAL 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ L. ENCAPSULATION 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ N. CUTOFF WALLS 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION N/A	02 DATE	03 AGENCY
01 ☐ Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION N/A	02 DATE	03 AGENCY

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D980510218

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E FIT Files and site interview

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	OH9805102 18

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ● NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

None

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E Files

EPA FORM 2070-13 (7-81)

APPENDIX D

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 1 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: F0H0138SB

DATE: 10/18/90

TIME: 9:50

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S1

DESCRIPTION: S1 Close-up

DATE: 10/18/90

TIME: 9:50

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S1

DESCRIPTION:

S1 Perspective I-71 is located just beyond the trees in the background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 2 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: F0H0138SB

DATE: 10/18/90

TIME: 10:00

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S2

DESCRIPTION: S2 Close-up

DATE: 10/18/90

TIME: 10:00

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S2

DESCRIPTION: S2 Perspective

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 3 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: F0H0138SB

DATE: 10/18/90

TIME: 10:20

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S3

DESCRIPTION: S3 Close-up

DATE: 10/18/90

TIME: 10:20

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S3

DESCRIPTION: S3 Perspective - Lake Engle Drive in the background
Concrete rubble and construction debris scattered around

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 4 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: F0H0138SB

DATE: 10/18/90

TIME: 10:15

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S4

DESCRIPTION: S4 Close-up

DATE: 10/18/90

TIME: 10:15

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S4

DESCRIPTION: S4 Perspective One-story office buildings and the end of Lake Engle Drive in the background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 5 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/18/90

TIME: 10:10

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S5

DESCRIPTION: S5 Close-up

DATE: 10/18/90

TIME: 10:10

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S5

DESCRIPTION: S5 Perspective

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 6 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/18/90

TIME: 10:30

DIRECTION OF PHOTOGRAPH: NNW

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S6

DESCRIPTION: S6 Close-up

DATE: 10/18/90

TIME: 10:30

DIRECTION OF PHOTOGRAPH: NNW

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S6

DESCRIPTION: S6 Perspective End of Engle Lake Drive in the background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 7 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/18/90

TIME: 10:25

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S7

DESCRIPTION: S7 Close-up

DATE: 10/18/90

TIME: 10:25

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S7

DESCRIPTION: S7 Perspective Lake Engle is located to the left out of this picture. The outflow drainage ditch is located along the left side of the turn of Engle Lake Drive, just beyond the upper left corner of this picture.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 8 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/18/90

TIME: 10:05

DIRECTION OF PHOTOGRAPH: NNW

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S8

DESCRIPTION: S8 Close-up

DATE: 10/18/90

TIME: 10:05

DIRECTION OF PHOTOGRAPH: NNW

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S8

DESCRIPTION: S8 Perspective

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 9 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/18/90

TIME: 9:55

DIRECTION OF PHOTOGRAPH: SE

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S9

DESCRIPTION: S9 Close-up

DATE: 10/18/90

TIME: 9:55

DIRECTION OF PHOTOGRAPH: SE

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): S9

DESCRIPTION: S9 Perspective

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 10 OF 19

U.S. EPA ID: OHD980510218 TDD: F05·8912-013 PAN: FOH0138SB

↑ Southwest ↑ West

DATE: 10/17/90 TIME: 15:30 DIRECTION OF PHOTOGRAPH: SW/W PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of site. Lake Engle is located to the left. Engle Lake Drive comes from the west, and forms a turn-around just west of the Abrams site. The two 1-story office buildings are in the background just off site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 11 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

West

NorthWest

DATE: 10/17/90 TIME: 15:30 DIRECTION OF PHOTOGRAPH: W/NW PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of site. The two 1-story office buildings are in the background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 12 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

↑ Northwest

↑ North

DATE: 10/17/90 TIME: 15:30 DIRECTION OF PHOTOGRAPH: NW/N PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION:

Perspective view of site. The end of the office building parking lot is at the far left. The additional vacant parcel of land owned by ERA is in the background up to the tree-line.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 13 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

North East ↑

← I-71

East ↑

DATE: 10/17/90 TIME: 15:30 DIRECTION OF PHOTOGRAPH: NE/E PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of site. I-71 is located behind the trees in the background.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 14 OF 19

U.S. EPA ID: OHD980510218 TDD: F05·8912-013 PAN: FOH0138SB

Southeast

← Lake Engle

South

DATE: 10/17/90 TIME: 15:30 DIRECTION OF PHOTOGRAPH: SE/S PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of site. I-71 is in the background behind the trees. Part of Lake Engle is visible at the far right. The Lake extends to the southeast to approximately ~90 Feet North west of I-71 but is not visible in this picture because the Filled area is approximately 8-10 feet higher in elevation then the Lake.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 15 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/17/90

TIME: 12:01

DIRECTION OF PHOTOGRAPH: South

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): N/A

DESCRIPTION: Run-off ditch that runs along the west side of I-71. FIT believes that this drain joins with the other to release into Lake Engle.

DATE: 10/17/90

TIME: 12:03

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of run-off ditch.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 16 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/17/90

TIME: 16:01

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Mostly Sunny, light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): N/A

DESCRIPTION: Close-up of inlet to Lake Engle. This drain culvert comes from under I-71 (in background) and releases run-off rain water into Lake Engle.

DATE: 10/17/90

TIME: 16:06

DIRECTION OF PHOTOGRAPH: SSW

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): N/A

DESCRIPTION: Perspective view of drain inlet.

* indicates the location of the inlet.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 17 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

SSE South SSW

DATE: 10/17/90 TIME: 12:03 DIRECTION OF PHOTOGRAPH: SSE/SSW PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION:

Perspective view of Lake Engle. I-71 is located in the top left corner of this picture. The inFlow culverts and the ditch between them are located between the end of Lake Engle and I-71.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 18 OF 19

U.S. EPA ID: OHD980510218 TDD: F05·8912-013 PAN: FOH0138SB

Southwest ↑ West

DATE: 10/17/90 TIME: 1203 DIRECTION OF PHOTOGRAPH: SW/W PHOTOGRAPHED BY: Charles Hall

WEATHER CONDITIONS: Mostly Sunny, light wind ~ 70°F SAMPLE ID (if applicable): N/A

DESCRIPTION:

Perspective view of Lake Engle. The one-story office building is located in the right corner of this picture

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Lake Abrams Holding Ponds PAGE 19 OF 19

U.S. EPA ID: OHD980510218 TDD: F05-8912-013 PAN: FOH0138SB

DATE: 10/17/90

TIME: 16:10

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Mostly Sunny light wind ~70°F

PHOTOGRAPHED BY: Charles Hall

SAMPLE ID (if applicable): N/A

DESCRIPTION: Outlet from the Northwest corner of Lake Engle. This Flows into a drainage ditch that Flows West along Engle Lake Drive. This eventually drains into a wetlands area ~1.2 miles to the west.

APPENDIX D

U.S. EPA TARGET COMPOUND LIST AND TARGET ANALYTE LIST QUANTITATION/DETECTION LIMITS

APPENDIX E

U.S. EPA TARGET COMPOUND LIST AND TARGET ANALYTE LIST QUANTITATION/DETECTION LIMITS

ROUTINE ANALYTICAL SERVICES
CONTRACT REQUIRED DETECTION AND QUANTITATION LIMITS

Table A

CONTRACT LABORATORY PROGRAM
TARGET COMPOUND LIST
VOLATILE QUANTITATION LIMITS

Compound	CAS No.	Water (µg/L)	Soil Sediment Sludge (µg/kg)
chloromethane	74-87-3	10	10
bromomethane	74-83-9	10	10
vinyl chloride	75-01-4	10	10
chloroethane	75-00-3	10	10
methylene chloride	75-09-2	10	10
acetone	67-64-1	10	10
carbon disulfide	75-15-0	10	10
1,1-dichloroethene	75-35-4	10	10
1,2-dichloroethane	75-34-3	10	10
1,1-dichloroethene (total)	540-59-0	10	10
chloroform	67-66-3	10	10
1,1-dichloroethane	107-06-2	10	10
2-butanone (MEK)	78-93-3	10	10
1,1,1-trichloroethane	71-55-6	10	10
carbon tetrachloride	56-23-5	10	10
bromodichloromethane	75-27-4	10	10
1,2-dichloropropane	78-87-4	10	10
cis-1,3-dichloropropene	10061-01-5	10	10
trichloroethene	79-01-6	10	10
dibromochloromethane	124-48-1	10	10
1,1,2-trichloroethane	79-00-5	10	10
benzene	71-43-2	10	10
trans-1,3-dichloropropene	10061-02-6	10	10
bromoform	75-25-2	10	10
4-methyl-2-pentanone	108-10-1	10	10
2-hexanone	591-78-6	10	10
tetrachloroethene	127-18-4	10	10
toluene	108-88-3	10	10
1,1,2,2-tetrachloroethane	79-34-5	10	10
chlorobenzene	108-90-7	10	10
ethylbenzene	100-41-4	10	10
styrene	100-42-5	10	10
xylenes (total)	1330-20-7	10	10

Table A
(Cont.)

CONTRACT LABORATORY PROGRAM
TARGET COMPOUND LIST
SEMIVOLATILE QUANTITATION LIMITS

Compound	CAS No.	Water (µg/L)	Soil Sediment Sludge (µg/kg)
phenol	108-95-2	10	330
bis(2-chloroethyl)ether	111-44-4	10	330
2-chlorophenol	95-57-8	10	330
1,3-dichlorobenzene	541-73-1	10	330
1,4-dichlorobenzene	106-46-7	10	330
1,2-dichlorobenzene	95-50-1	10	330
2-methylphenol	95-48-7	10	330
2,2'oxybis(1-chloropropane)	108-60-1	10	330
4-methylphenol	106-44-5	10	330
N-nitroso-di-N-dipropylamine	621-64-7	10	330
hexachloroethane	67-72-1	10	330
nitrobenzene	98-95-3	10	330
isophorone	78-59-1	10	330
2-nitrophenol	88-75-5	10	330
2,4-dimethylphenol	105-67-9	10	330
bis(2-chloroethoxy)methane	111-91-1	10	330
2,4-dichlorophenol	120-83-2	10	330
1,2,4-trichlorobenzene	120-82-1	10	330
naphthalene	91-20-3	10	330
4-chloroaniline	106-47-8	10	330
hexachlorobutadiene	87-68-3	10	330
4-chloro-3-methylphenol	59-50-7	10	330
2-methylnaphthalene	91-57-6	10	330
hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-trichlorophenol	88-06-2	10	330
2,4,5-trichlorophenol	95-95-4	50	1700
2-chloronaphthalene	91-58-7	10	330
2-nitroaniline	88-74-4	50	1700
dimethylphthalate	131-11-3	10	330
acenaphthylene	208-96-8	10	330
2,6-dinitrotoluene	606-20-2	10	330
3-nitroaniline	99-09-2	50	1700
acenaphthene	83-32-9	10	330
2,4-dinitrophenol	51-28-5	50	1700
4-nitrophenol	100-02-7	50	1700
dibenzofuran	132-64-9	10	330
2,6-dinitrotoluene	121-14-2	10	330
diethylphthalate	84-66-2	10	330
4-chlorophenyl-phenylether	7005-72-3	10	330

Table A
(Cont.)

CONTRACT LABORATORY PROGRAM
TARGET COMPOUND LIST
SEMIVOLATILE QUANTITATION LIMITS

Compound	CAS No.	Water (µg/L)	Soil Sediment Sludge (µg/kg)
fluorene	86-73-7	10	330
4-nitroaniline	100-01-6	50	1700
4,6-dinitro-2-methylphenol	534-52-1	50	1700
N-nitrosodiphenylamine	86-30-6	10	330
4-bromophenyl-phenylether	101-55-3	10	330
hexachlorobenzene	118-74-1	10	330
pentachlorophenol	87-86-5	50	1700
phenanthrene	85-01-8	10	330
anthracene	120-12-7	10	330
carbazole	86-74-8	10	330
di-n-butylphthalate	84-74-2	10	330
fluoranthene	206-44-0	10	330
pyrene	129-00-0	10	330
butylbenzylphthalate	85-68-7	10	330
3,3'-dichlorobenzidine	91-94-1	10	330
benzo[a]anthracene	56-55-3	10	330
chrysene	218-01-9	10	330
bis(2-ethylhexyl)phthalate	117-81-7	10	330
di-n-octylphthalate	117-84-0	10	330
benzo[b]fluoranthene	205-99-2	10	330
benzo[k]fluoranthene	207-08-9	10	330
benzo[a]pyrene	50-32-8	10	330
indeno[1,2,3-cd]pyrene	193-39-5	10	330
dibenz[a,h]anthracene	53-07-3	10	330
benzo[g,h,i]perylene	191-24-2	10	330

Table A
(Cont.)

CONTRACT LABORATORY PROGRAM
TARGET COMPOUND LIST
PESTICIDE AND PCB QUANTITATION LIMITS

Compound	CAS No.	Water (µg/L)	Soil Sediment Sludge (µg/kg)
alpha BHC	319-84-6	0.05	1.7
beta BHC	319-85-7	0.05	1.7
delta BHC	319-86-8	0.05	1.7
gamma BHC (Lindane)	58-89-9	0.05	1.7
Heptachlor	76-44-8	0.05	1.7
Aldrin	309-00-2	0.05	1.7
Heptachlor epoxide	1024-57-3	0.05	1.7
Endosulfan I	959-98-8	0.05	1.7
Dieldrin	60-57-1	0.10	3.3
4,4'-DDE	72-55-9	0.10	3.3
Endrin	72-20-8	0.10	3.3
Endosulfan II	33213-65-9	0.10	3.3
4,4'-DDD	72-54-8	0.10	3.3
Endosulfan sulfate	1031-07-8	0.10	3.3
4,4'-DDT	50-29-3	0.10	3.3
Methoxychlor (Mariate)	72-43-5	0.5	17
Endrin ketone	53494-70-5	0.10	3.3
Endrin aldehyde	7421-36-3	0.10	3.3
alpha Chlordane	5103-71-9	0.05	1.7
gamma Chlordane	5103-74-2	0.05	1.7
Toxaphene	8001-35-2	5.0	170
Aroclor 1016	12674-11-2	1.0	33
Aroclor 1221	11104-28-2	1.0	33
Aroclor 1232	11141-16-5	2.0	67
Aroclor 1242	53469-21-9	1.0	33
Aroclor 1248	12672-29-6	1.0	33
Aroclor 1254	11097-69-1	1.0	33
Aroclor 1260	11096-82-5	1.0	33

Table A
(Cont.)

CONTRACT LABORATORY PROGRAM
TARGET ANALYTE LIST
INORGANIC DETECTION LIMITS

Compound	Procedure	Water (µg/L)	Soil Sediment Sludge (mg/kg)
aluminum	ICP	200	40
antimony	furnace	60	2.4
arsenic	furnace	10	2
barium	ICP	200	40
beryllium	ICP	5	1
cadmium	ICP	5	1
calcium	ICP	5,000	1,000
chromium	ICP	10	2
cobalt	ICP	50	10
copper	ICP	25	5
iron	ICP	100	20
lead	furnace	3	1
magnesium	ICP	5,000	1,000
manganese	ICP	15	3
mercury	cold vapor	0.2	0.008
nickel	ICP	40	8
potassium	ICP	5,000	1,000
selenium	furnace	5	1
silver	ICP	10	2
sodium	ICP	5,000	1,000
thallium	furnace	10	2
tin	ICP	40	8
vanadium	ICP	50	10
zinc	ICP	20	4
cyanide	color	10	2

APPENDIX E

WELL LOGS OF THE AREA OF THE SITE

WELL LOG AND DRILLING REPORT

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 288940

County Jefferson Township Wells Section of Township

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 25'
Type of screen Length of screen
Type of pump Jet
Capacity of pump
Depth of pump setting 30'
Date of completion Oct. 24, 1963

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.
Drawdown 5 ft. Date Oct. 24, 1963
Static level-depth to water 13 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by George Depew

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	6 Ft.
Clay & Sand	6	9
Blue Clay	9	22
Sandstone	22	40
Water at 35'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

Non-responsive

See reverse side for instructions

Drilling Firm George I. Depew
Address 32630 Howe Rd., Steubenville 36, Ohio

Date Oct. 24, 1963
Signed George I. Depew

(101)

ORIGINAL

WELL LOG AND DRILLING REPORT

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No 331082

County Cuyahoga Township Berea Section of Township

[redacted]

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 194'
Type of screen Casing Rip Length of screen 1 Ft.
Type of pump Turbine Test Pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

Pumping Rate 77 G.P.M. Duration of test 2 hrs.
Drawdown 65' ft. Date 11/5/66
Static level-depth to water Flowing ft.
Quality (clear) cloudy, taste, (odor) Sulphur
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Yellow Clay	0 Feet	10 Ft.
Blue Clay	10	15
Black Clay	15	30
Blue Clay	30	40
Drift Mix	40	45
Blue Clay	45	75
Quick Sand	75	85
Sand + Gravel	85	88
Blue Clay	88	96
Quick Sand	96	103
Fine Sand + Gravel	103	135
Coarse Sand + Gravel	135	144
Clay Sand + Gravel	144	146
Blue Clay	146	172
Sand + Gravel	172	176
Drift Mix	176	193
Shale	193	198
Casing ripped @ 173-174	ft.	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

[redacted]

S.

See reverse side for instructions

Drilling Firm Schneider Well Drilling Inc.
Address 13690 West 130th Street Strongsville 36, Ohio

Date 11/5/66
Signed Donald Schneider

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

No 330006

County [redacted] Township [redacted] Section of Township [redacted]

[redacted]

CONSTRUCTION DETAILS

Casing diameter [redacted] Length of casing [redacted]
Type of screen [redacted] Length of screen [redacted]
Type of pump [redacted]
Capacity of pump [redacted]
Depth of pump setting [redacted]
Date of completion [redacted]

BAILING OR PUMPING TEST

Pumping Rate [redacted] G.P.M. Duration of test [redacted] hrs.
Drawdown [redacted] ft. Date [redacted]
Static level-depth to water [redacted] ft.
Quality (clear, cloudy, taste, odor) [redacted]
Pump installed by [redacted]

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
[redacted]	0 Feet	[redacted] Ft.
[redacted]	[redacted]	[redacted]

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

[redacted]

See reverse side for instructions

Drilling Firm [redacted] Date [redacted]

Address [redacted] Signed [redacted]

*If additional space is needed to complete well log, use next consecutive numbered form.

1 28

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No. 331027

EASE USE PENCIL
R TYPEWRITER
O NOT USE INK.

unty Cuyahoga Township ~~Berea~~ Section of Township

Non-responsive

CONSTRUCTION DETAILS

ng diameter 6-5/8" Length of casing 22'
e of screen Length of screen
e of pump submersible
pacity of pump 20 gpm
epth of pump setting 45'
Date of completion 7/20/65

BAILING OR PUMPING TEST

Pumping Rate 50 G.P.M. Duration of test 3 hrs.
Drawdown 15 ft. Date 7/20/65
Static level-depth to water 18 ft.
Quality (clear, cloudy, taste, odor)

Pump installed by Schneider

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
yellow clay	0 Feet	10 Ft.
soft shale	10	20
shale	20	43
sandstone	43	55

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

Non-responsive

See reverse side for instructions

Drilling Firm Schneider Well Drilling Inc.
Address 15690 West 150th Street, Strongsville 36, Ohio

Date 7/20/65
Signed Donald Schneider

*If additional space is needed to complete well log, use next consecutive numbered form.

(2)

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

No. 357779

County Cuyahoga Township Olmsted Falls / Middleburg Section of Township

[redacted]

CONSTRUCTION DETAILS "WELL # 3"

Casing diameter 5½" Length of casing 32'4"
Type of screen Drive Shoe 5½" Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion Pig Up-3/22/69 3/31/69

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test overnight and 3 hours
Drawdown ft. Date during 3/31/69
Static level-depth to water 68 feet. ft.
Quality (clear, cloudy, taste, odor) Water tests: 130 gal. overnight-(13 bailers) Static Level-68'-Open crevices somewhere between 68 to 105'. Water tastes O.K. 1st test-120 GPH, 2nd-110 GPH, 3rd 100 GPH, 4th 60 GPH. Estimate well is only good for 60 GPH or 1 GPM. Tests spaced about half hour apart.
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Black clay	0 Feet	1'6" Ft.
Yellow sandy clay	1'6"	to 9'
Gray sandy shale with 1/16" to 1/8" gravel-all colors	9'	to 22'
Gray shale mixed with lt. gray gravel, some muddy water-(hard soapstone)	22	to 28'
Sandstone shell-extra hard	28	to 30'
Berea black shale (hard)	30	33'
Shale-Berea-hard	33	68'
Gray cuyahoga shale-soft	68	88'
Gray shale-hard	88	91'
Gray shale (some shells) (note: at 99' to 101'-tests showed water 120 GPH plus.	91	102'
Black shale	102	105'
Gray shale slight sulphur odor at 89'-water est. 90 water 99 to 101'-120 GPH. This is the second well at this address which showed 120 GPH then by repeated tests, dropped back to 1 gal. per minute. Believe there is open fissure below water vein.	105	112' Tota

SKETCH SHOWING LOCATION
Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

(Figured as a dry hole, pipe pulled and well abandoned.)

[redacted]

W

Drilling Firm Paul R. Baldwin Well Drilling. Date 3/31/69

Address 1739 Columbia Rd. Valley City, Ohio 44280 Signed Paul R. Baldwin

*If additional space is needed to complete well log, use next consecutive numbered form.

(05)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER

DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No. 357780

County Cuyahoga Township Olmsted Falls Section of Township

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5½" Length of casing 37'8"
Drive Shoe 5½"
Type screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting Pig Up April 1, 1969
Date of completion April 7, 1969

BAILING OR PUMPING TEST

Pumping Rate 60 GPH Duration of test 3½ hrs.
90 gallons overnight.
Drawdown 61 ft. Date 4/7/69
Static level-depth to water 22 feet ft.
Quality (clear, cloudy, taste, odor) Clear, taste good. 11 grains hardness (est.) by soap test. Chlorinated with 6 tablets
Pump installed by owner

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
yellow clay	0 Feet	3 Ft.
sandy yellow clay	3	9
gray shale-Cuyahoga mixed with gravel-1/16" to 1/4"-All Colors	9	22
Berea Shale-black-mixed with sand and fine gravel	22	32
Hard sandstone shell with short break of shale	32	37
Berea Shale-very black mixed with shells	37	52
Berea Soapstone-very balck and hard	52	79
1st water-est. 1 GPM at 61 to 63 feet.		
Gray shale	79 to	100.
TOTAL DEPTH 100 feet.		
1st water test showed 1 GPM		
2nd water test-1 GPM-60 GPH		
3rd water test-3/4 GPM or 50 GPH		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

4th test-60 GPH
5th test-60 GPH

Non-responsive

Drilling Firm Baldwin Well Drilling Date April 7, 1969

Address 1739 Columbia Rd., Valley City, Ohio 44280 Signed Paul R. Baldwin

Paul R. Baldwin

*If additional space is needed to complete well log, use next consecutive numbered form.

(96)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 288940

County Cuyahoga Township Middleburg ~~Hts.~~ Section of Township

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 25'
Type of screen Length of screen
Type of pump Jet
Capacity of pump
Depth of pump setting 30''
Date of completion Oct. 24, 1963

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.
Drawdown 5 ft. Date Oct. 24, 1963
Static level-depth to water 15 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by George Depew

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	6 Ft.
Clay & Sand	6	9
Blue Clay	9	22
Sandstone	22	40
Water at 35''		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

Non-responsive

Drilling Firm George I. Depew
Address 18630 Howe Rd., Strongsville 36, Ohio

Date Oct. 24, 1963
Signed George I. Depew

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 253110

County Cuyahoga Township Middleburg Section of Township NW OF TH SE

Ohio

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 32'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate 30 G.P.M. Duration of test hrs.

Drawdown 0 ft. Date 8-17-60

Developed capacity

Static level—depth to water 18 ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Sandy Clay & Gravel	0 Feet	31' Ft.
Sand Stone	31'	39'
Water 36'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

Non-responsive

W

Drilling Firm R E WERSHING
RD # 1 HINCKLEY, OHIO

Address

Date 8-18-60

Signed R E Wershing

[redacted]

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

Nº 171065

County Cuyahoga Township Middleburg Section of Township or Lot Number

[redacted]

CONSTRUCTION DETAILS

Casing diameter 10" Length of casing 32'

Type of screen — Length of screen —

Type of pump —

Capacity of pump —

Depth of pump setting —

PUMPING TEST

Pumping rate 170 G.P.M. Duration of test — hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 12 ft.

Pump installed by —

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	18 Ft.
Sand	18	22
Shale & Sand	22	51
Sand Rock	51	74
Shale White	74	75

Water in Sand Rock

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

[redacted]

See reverse side for instructions

Drilling Firm McLaughlin Well Drilling Date June 7 - 56

Address Valley City O. Signed [illegible]

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 258378

County Cuyahoga Township Middleburg Hts Section of Township

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 27'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.
Drawdown 5 ft. Date Aug. 14, 1961
Developed capacity 10 GPM
Static level—depth to water 15 ft.
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	6 Ft.
Clay & Sand	6	11
Blue Clay	11	22
Sandstone	22	40
Water at 33'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

Non-responsive

See reverse side for instructions

Drilling Firm Borough Drilling Co.
Address 18630 Howe Rd., Strongsville 36, Ohio

Date Aug. 14, 1961
Signed

WELL LOG AND DRILLING REPORT

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No 328460

County Cuyahoga Township Middleburg Section of Township NW of the SE

Non-responsive

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 16'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

Pumping Rate 20 G.P.M. Duration of test hrs.
Drawdown 23 ft. Date 3-9-65
Static level-depth to water 6 ft.
Quality (clear, cloudy, taste, odor) clear
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Sandy Clay	0 Feet	8 Ft.
Sand Stone	8	50'
Water 43'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

Non-responsive

S.

See reverse side for instructions

Drilling Firm R E WERSHING Date 3-10-65

Address 2175 HINCKLEY HILLS HINCKLEY, OHIO Signed R E Wershing

*If additional space is needed to complete well log, use next consecutive numbered form.

(135)

[redacted] LL LOG AND DRILLING REPORT

ORIGINAL

WL 3

State of Ohio
[redacted] ARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

Nº 171065

County Cuyahoga Township Middleburg Section of Township or Lot Number

[redacted]

CONSTRUCTION DETAILS		PUMPING TEST	
Casing diameter 10"	Length of casing 32'	Pumping rate 150 G.P.M.	Duration of test — hrs.
Type of screen —	Length of screen —	Drawdown ft.	Date
Type of pump —		Developed capacity	
Capacity of pump —		Static level—depth to water 12 ft.	
Depth of pump setting —		Pump installed by —	

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	15 Ft.
Sand	18	22
Shale & Sand	22	31
Sand Rock	31	74
Shale White	74	75
Water in Sand Rock		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W.

[redacted]

S.

See reverse side for instructions

Drilling Firm McLane [illegible] Date June 7-56

Address Valley City O. Signed [illegible]